

SIKORAEXTRA

Your magazine for Wire & Cable | Optical Fiber



Energy turnaround with SIKORA – production lines fit for the future 04

SIKORA Success Story: Measurement of filaments for 3D printing 08



Dear readers,

The year is already drawing to a close. Before we start the new year, we would like to let you know about our current events in this EXTRA issue.

Last fall, Holger Lieder took over the position of Interim Director Marketing & Service, in addition to his role as Director of Sales. He discusses this in a short interview. Additionally, we focus on the expansion of wind energy, increasing electrification and the role measuring technology from SIKORA plays in this context. In our article about the LASER Series 2000, you will learn more about the difference between accuracy and repeatability. We also provide an overview of our LUMP 2000 lump detector.

Filaments for 3D printing are subject to increasing quality requirements. Read why PMH GmbH relies on SIKORA's LASER Series 2000 to monitor the production process.

We wish you and your families a merry Christmas and a good start into the new year.

But first, enjoy reading!
Sincerely,

Dr. Christian Frank
CEO SIKORA AG

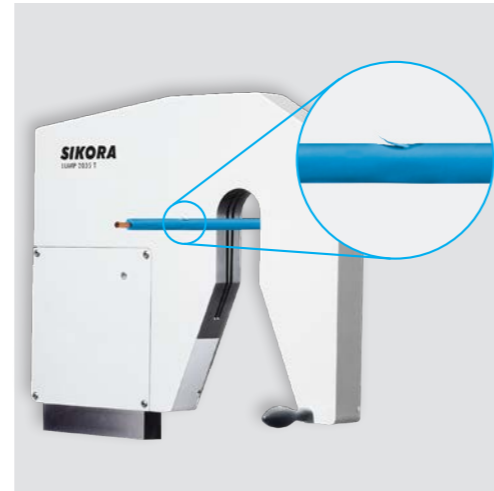
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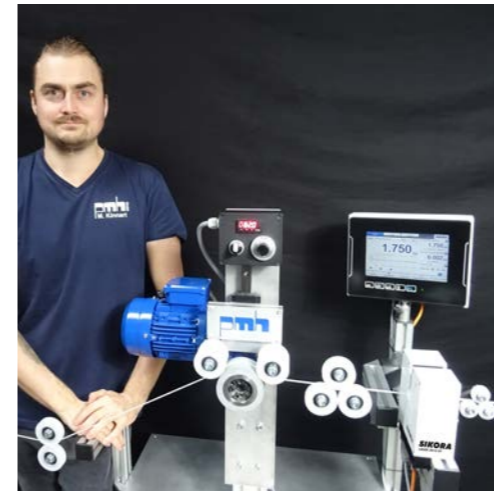
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MAKE YOUR PRODUCTION LINE FIT FOR THE FUTURE

How to shape the energy era with SIKORA measuring technology

Against the backdrop of the current energy shortage, the expansion of renewable energies and sustainable technologies is experiencing a new era. In order for the energy transition to be successful, cables of outstanding quality must be produced. The measuring and control systems from SIKORA support manufacturers in their production processes with inline quality control.



Safe energy transport from offshore terminals to the mainland

Offshore wind farms are indispensable for energy conversion. Thanks to their continuous wind conditions and comparatively high average wind speeds, installed wind turbines achieve high utilization rates. In order to be able to continue using the energy generated, a variety of tools and methods, including submarine cables, are needed to transport the electricity to the mainland. In the case of submarine cables, completing a repair in the event of a defect is very time-consuming and cost-intensive. First, the damaged area must be located. Then the cable is lifted. The defective area is cut out and replaced by repair pieces with cable sleeves before being placed

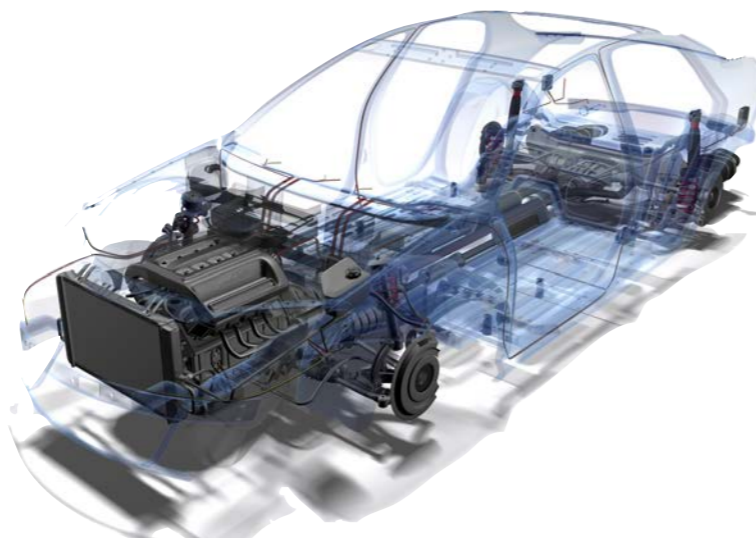
back in the ocean. Manufacturers of submarine cables rely on continuous quality control throughout the manufacturing process. SIKORA's X-RAY 8000 product family is the worldwide standard for medium, high and extra high voltage cables with more than 1,800 installed devices.

The systems can measure and control up to 3 cable layers, ensuring that the required specifications are met. The X-RAY 8000 ADVANCED/NXT provides information for a fast centering and enables an immediate control. For a final quality control, SIKORA also offers the X-RAY 8700 NXT. By using the X-RAY 8000 ADVANCED/NXT at the beginning and the X-RAY 8700 NXT at the end of the line, precise shrinkage values for all 3 insulation layers of the cable are determined. This ensures optimum process control.

Increasing demand for cables for electrification

The energy transition not only requires flawless MV, HV and EHV cables; there is also a growing demand for cables in general. These include small, flat battery cables and automotive cables for electric cars. The constantly increasing number of electronic components poses immense

challenges for automotive manufacturers. On the one hand, the increasing use of all kinds of electronics leads to more weight, which is accompanied by a loss of power in electric cars; on the other hand, the growing number of cables



SIKORA CENTERVIEW 8000 – 8-point eccentricity, 4-axis diameter and 8-point ovality measurement.

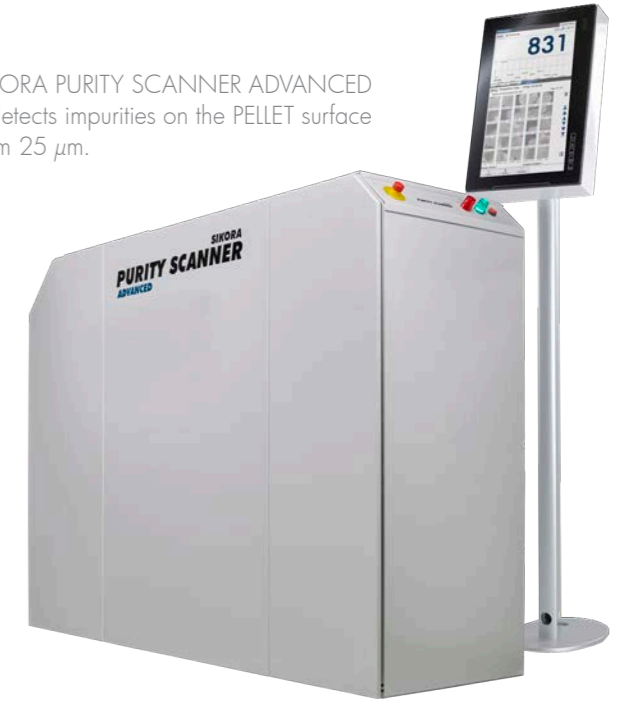
and wires creates a growing potential for errors. SIKORA's CENTERVIEW 8000 is a non-contact gauge head that provides continuous online 8-point eccentricity, 4-axis diameter and 8-point ovality measurement with the highest measurement accuracy. The system reliably measures small coaxial cables, data cables, automotive cables and battery cables, minimizing material consumption and costs, while ensuring product quality. The system is available for diameters from 0.25 (optionally 0.1 mm) to 10 mm (.01 (optionally 0.0004) to .39") and 0.5 to 25 mm (.02 to 1").

Diameter devices of the LASER Series 2000 or 6000 are also used for quality control of power cables. The 2-axis and 3-axis gauge heads of the LASER Series 2000 are designed for diameters from 0.05 to 500 mm (.002 to 19.7"). The outer diameter is calculated directly from the shadow image by means of an intelligent diffraction analysis. Extremely short exposure times guarantee a high single value accuracy at all system speeds – even with a high vibration frequency of the measuring object. The 3 gauge heads of the LASER Series 6000 offer lump detection in addition to diameter measurement. They are designed for diameters from 0.2 to 78 mm (.008 to 3") and offer the highest precision and reliability.

Provision of purest raw materials

The insulation of all conductors must also be free of defects. To ensure this, the raw material is subjected to an additional quality control by manufacturers before further processing. For this

SIKORA PURITY SCANNER ADVANCED – detects impurities on the PELLET surface from 25 µm.



purpose, SIKORA has developed the PURITY SCANNER ADVANCED, which is used, among other equipment, in the high voltage cable production. The inline inspection and sorting system can be equipped with 3 optical cameras as well as an X-ray camera, depending on the requirements. In this way, impurities, such as black specks on the pellet surface, are reliably detected and sorted out from a size of 25 µm. The X-ray camera also detects metallic impurities inside the pellets, and it minimizes the risk for punctures, for example in the dielectric strength test. Therefore, SIKORA contributes to the production of a safe, flawless product without visual or functional defects right from the start.

Let's shape the future together!

The energy era is setting the course for a more sustainable and responsible use of resources. For this to succeed, it requires excellent products of the best quality. With measuring and control technology from SIKORA you can optimize your manufacturing processes and save material, energy and costs while meeting all specifications. For more information please contact us at any time by e-mail to sales@sikora.net or by phone +49 421 48 900 0.

NO MORE MISSING THE MARK

Accurate and repeatable measuring results

In measurement technology, the specification of accuracy is a decisive parameter for ensuring the required cable quality. In practice, unfortunately, for some measuring devices only the repeatability is specified or equated with accuracy. An example from soccer shows how the terms can be easily distinguished and which measurement results can be achieved by considering each respective term.

In a soccer match, there is a penalty shootout. Each shooter has 5 shots to hit the goal. If the soccer player hits the goal accurately with each shot, for example, in the upper left or right angle, the shots are accurate with a high repeatability (1).

If, for example, the soccer player shoots 5 times to the left of the goal, very close to the post, then these shots have a high repeatability (2), but this has nothing to do with accuracy, at least nothing to do with success.

The accuracy and repeatability also behave analogously in metrology. The gauge heads of the LASER Series 2000 are based on the patented method of diffraction analysis, in which the diameter is determined from the diffraction fringe with an extremely high accuracy. Several points of the virtual image are used to determine the diameter. This ensures that the single values

provided are accurate and repeatable. Accuracy is an absolute value that a measuring device must have. Deviations are only allowed within its specified tolerance.

Repeatability refers to the deviations, i.e., the range of variation, to be expected with repeated measurements. The specification of repeatability without an accuracy value to which it refers can be useful. For example, if the aim is to check the body weight with a scale daily, it helps to record the fluctuating body weight with a corresponding repeatability. However, the absolute weight may be significantly off in the process.

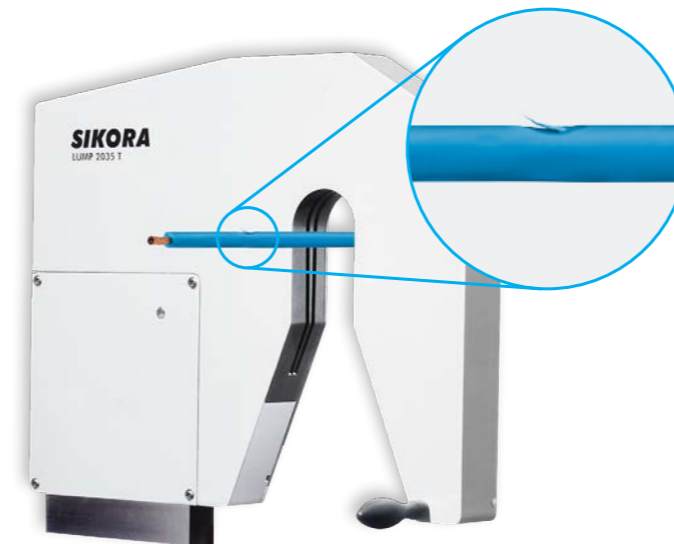
SIKORA delivers a technology that shows a very high accuracy after many decades, combined with an incomparable repeatability. Even under production-related, vibrating cores, measured values are continuously recorded in a fraction of a microsecond with consistent accuracy thanks to the short exposure time.



NO CHANCE FOR LUMPS AND NECKDOWNS

The LUMP 2000 lump detector reliably detects surface defects

Small lumps and neckdowns on the surface of cores, wires and cables reduce their quality and often lead to a rejection of the entire production batch. Therefore, lump detectors like SIKORA's LUMP 2000 are used in the extrusion process to detect surface defects inline and ensure the highest quality.



Simple line integration and multiple connection options

The LUMP 2000 detectors are extremely robust and, due to their small size, easy to integrate into any extrusion or rewinding line. The systems provide various interfaces such as RS485 or RS232 for PC diagnostics. Optionally, the connections Profibus-DP or an industrial fieldbus such as Profinet IO, EtherNet/IP, CANopen or DeviceNet are available. The specification of the tolerance thresholds and the visualization of the detected lumps/neckdowns is done with the REMOTE 6000 display system or one of the SIKORA ECOCONTROL processor systems. Alternatively, the devices of the LUMP 2000 series can be directly integrated into the plant control via a universal interface module.

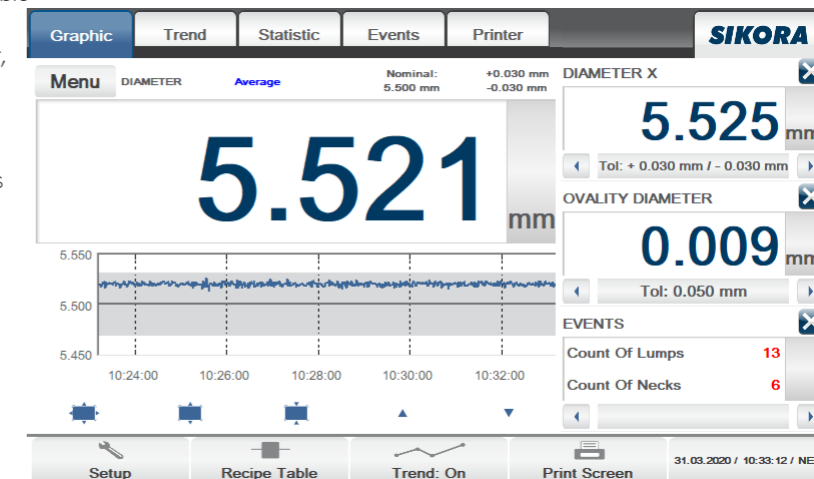
Different models according to application

SIKORA offers different account monitor models to meet the different customer requirements. In addition to 2-axis gauge heads for product diameters from 0.5 to 10 mm (.02 - .39") or 0.5 to 25 mm (.02 - 1") 3-axis gauge heads are also available, which are characterized by their even higher detection probability and are therefore designed for the detection of point defects at constantly high line speeds. The 3-axis models are available as standard for diameters from 0.25 to 10 mm (.01 - .39") or 0.5 to 35 mm (.02 - 1.4"). Special models, such as for measuring optical fibers, flat and transparent products, complete the wide product range.

Convincing technology

Fast, precise and with high reliability, the 2-axis and 3-axis lump detectors of the LUMP 2000 series detect even the smallest lumps and neckdowns of wires, conductors and cables – at any line speed. The use of two sensors per axis avoids so-called "ghost errors", which are only triggered by external light fluctuations. The double sensor technology, where the difference of the 2 sensors is evaluated, allows a reliable detection of "real faults". A powerful signal processor also evaluates the number, height, depth and length of the defect location. By combining the dual sensor technology (differential measuring principle) with infrared light sources, the LUMP 2000 series always ensures the highest reliability in defect detection, even under difficult conditions such as dirt, dust and extreme vibration.

Measuring results of the LUMP 2000 on the SIKORA ECOCONTROL 600

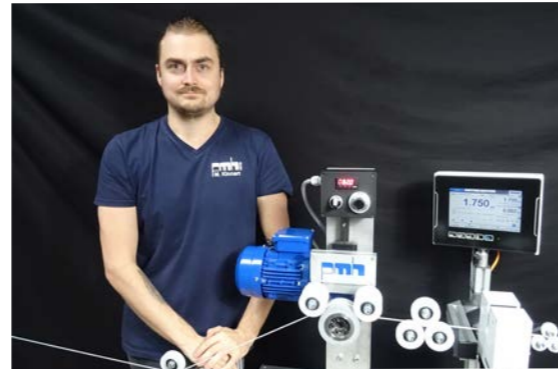


PMH RELIES ON SIKORA FOR QUALITY CONTROL OF FILAMENTS FOR 3D PRINTING

PMH GmbH is a German manufacturer of individual extrusion lines with over 30 years of expertise. In addition to standard extrusion lines, the plant in Königswinter, Germany, also manufactures complete filament lines where filaments for the 3D printer industry are produced. To ensure the highest possible quality in the production of the filaments, PMH equips its lines with measuring and control technology from SIKORA.

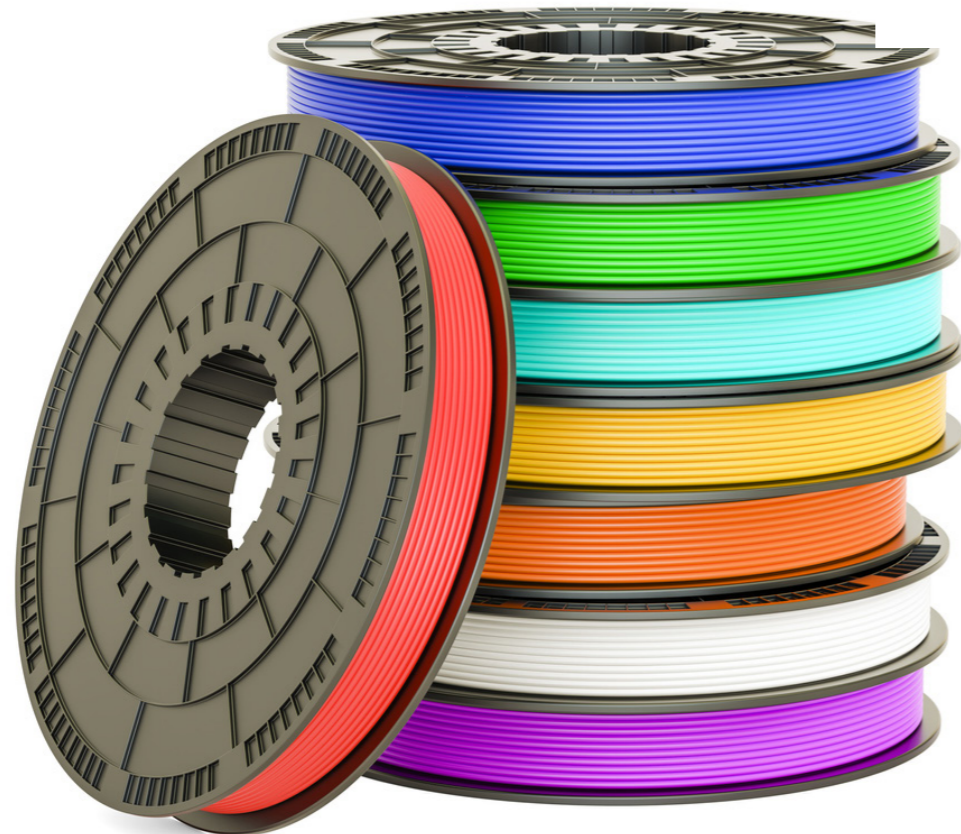
Especially in the production of high-quality filaments, for example for 3D printing of medical technology, manufacturers are increasingly focusing on quality assurance. Filaments are thermoplastics that are assembled as wire on spools and used in the 3D printing manufacturing process. PMH manufactures complete extrusion filament lines, consisting of extruder, water bath, haul-off and winder, for filaments with diameter ranges of 1.75 mm or 2.85 mm (.069 or .112"). For customers who require quality control, PMH offers measurement and control of the filament line by means of a 2-axis laser measurement as standard. For this purpose, one LASER 2010 XY from SIKORA is used per filament line. The gauge head based on laser technology precisely measures the diameter of the filaments.

In combination with an ECOCONTROL 600 processor system, the filament dimensions are visualized and automatically controlled, ensuring a high-quality filament. This inline quality control prevents feeding errors and possible clogging of the 3D printer.



"The demand for the use of measuring technology in the production of high-quality filaments is unbroken," says Michael Kinnart, Technical Director at PMH GmbH. "All the more, we are pleased to have found a reliable partner in SIKORA, who has a suitable solution for our customer needs, which can be easily integrated into our complete lines."

Michael Kinnart, Technical Director at PMH GmbH, at the filament line with integrated diameter gauge head, LASER 2010 XY, from SIKORA



SIKORA

STARS



CENTERVIEW 8000

SIKORA
Technology To Perfection



- Non-contact, high-precision eccentricity and concentricity measuring system
- 4-axis diameter and 8-point ovality measurement
- Wide diameter range: 0.1 - 25 mm
- Unique auto-positioning of the gauge head to the conductor position; no cable guiding needed
- SIKORA exclusive and innovative scatter plot diagram to show the distribution of real-time eccentricity variations
- Over 1,000 units sold worldwide



INTRODUCED: HOLGER LIEDER WITH NEW FUNCTION

Interview with Holger Lieder, Director of Sales and Interim Director Marketing and Service



What are among the duties of an acting director?

I am provisionally responsible for the Service and Marketing divisions, which I took over from Dr. Wissdorf after he left the company. In this role, I ensure that the divisions continue to have a direct contact for strategic issues and questions. In addition, I continue to be responsible for the Sales division.

What are your goals in your new role?

The main focus of my work is currently on Service. We are working on new concepts for providing even better support to our customers. In addition to our standard services such as consulting, the help desk, or the installation and commissioning of equipment by our service technicians, this also includes a comprehensive range of training courses for customers. The last point in particular is becoming increasingly important, as we want our customers to benefit optimally from the advantages of our equipment. Service is an important part of the SIKORA philosophy. We are there when the customer needs us, even after the purchase of a device. Therefore, we want to continue to be excellently positioned in this area.

What do you do in your free time?

I actively play tennis in the club, which for me creates a perfect balance to work. In addition, I am a passionate hobby gardener. In the garden, you can usually find me near our pond, which I keep a special eye on and make sure, among other things, that our koi feel comfortable.

Do you have a motto?

Life is too short to pull a long face.

Mr. Lieder, thank you very much for the interview!

Since September 2022, Holger Lieder has been responsible for Service and Marketing on an interim basis in addition to his work as Director of Sales. What are his new tasks, goals and what does he like to do in his spare time? We asked him in an interview.

Mr. Lieder, if you have been with SIKORA for 18 years, you know the company very well. Is this also the reason why you fit the new position of the acting manager?

It is very helpful to know the company in all its facets, regarding technology and products, but also regarding the relationships with colleagues. Existing structures and processes at SIKORA are known to me, and I can contribute my knowledge and experience for further optimization.

RAFFLE



Wordle!

Five letters – six attempts.

Can you find the secret word? Simply scan the QR code or follow the link <https://qrco.de/sikora-wordle-en> and start playing.

To participate, email your solution to us by Jan 31, 2022: extra@sikora.net

You can win one of three Toshiba Canvio Ready hard drives with 1 TB of storage.



Your contact details will not be passed on to third parties. Each correct answer takes part in the raffle. SIKORA employees and their relatives are excluded from participation. Each player can only participate once. We value the first email, all subsequent emails will be considered invalid. The legal process is excluded.

GOOD LUCK!

NEXT EVENTS



• Interwire | May 09-11, 2023 | Atlanta, GA, USA



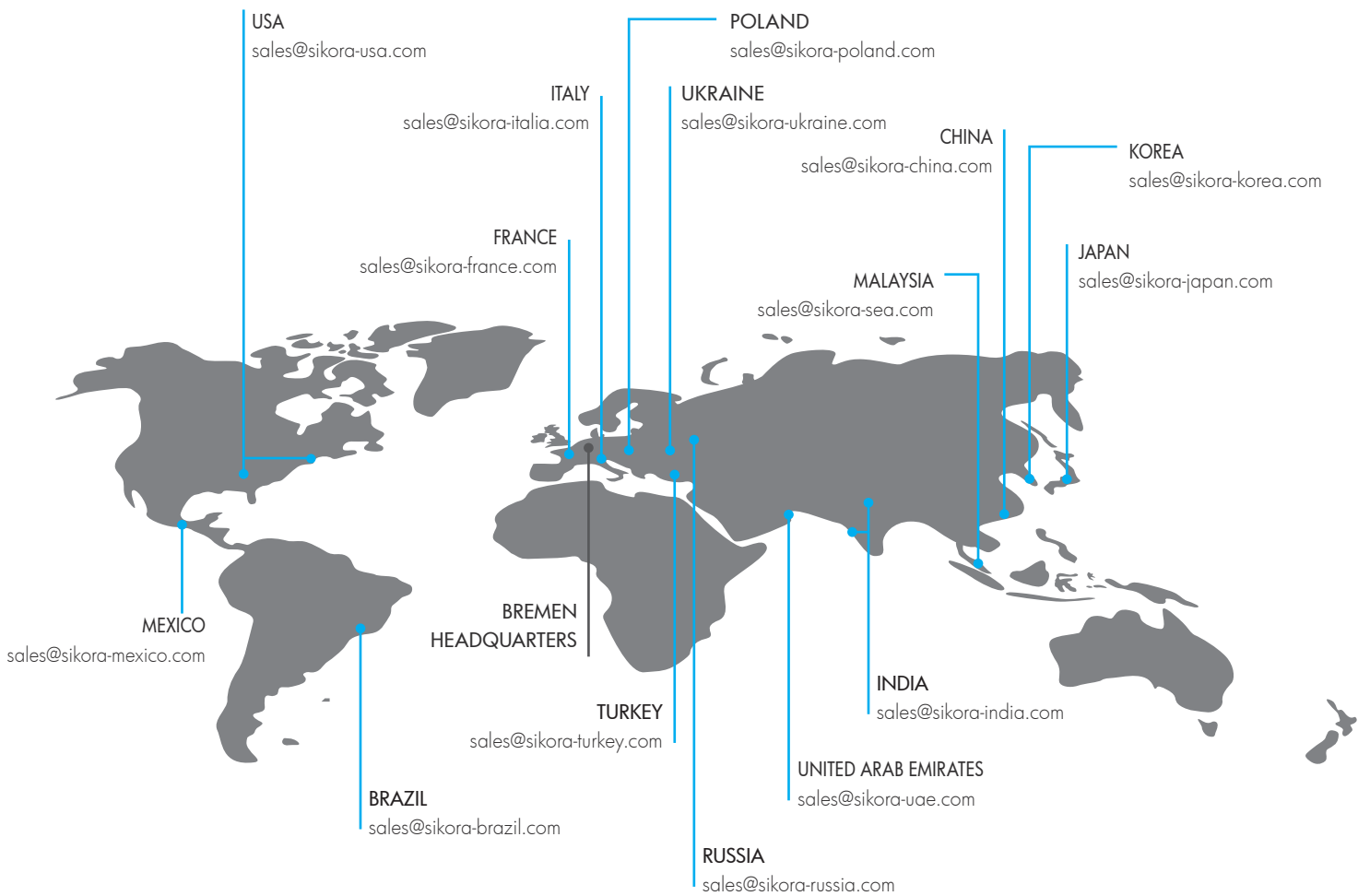
• wire Southeast Asia | Sep 20-22, 2023 | Bangkok, Thailand

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